

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 April 2005 (14.04.2005)

PCT

(10) International Publication Number
WO 2005/033520 A1

(51) International Patent Classification⁷: **F04D 19/04**

(74) Agent: **BOOTH, Andrew, Steven**; The Boc Group Plc,
Chertsey Road, Windlesham, Surrey GU20 6HJ (GB).

(21) International Application Number:
PCT/GB2004/004110

(22) International Filing Date:
23 September 2004 (23.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0322888.9 30 September 2003 (30.09.2003) GB
0409139.3 23 April 2004 (23.04.2004) GB

(71) Applicant (for all designated States except US): **THE BOC GROUP PLC** [GB/GB]; Chertsey Road, Windlesham, Surrey GU20 6HJ (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **STONES, Ian, David** [GB/GB]; BOC Edwards, York Road, Burgess Hill, West Sussex RH15 9TT (GB). **SCHOFIELD, Nigel, Paul** [GB/GB]; BOC Edwards, York Road, Burgess Hill, West Sussex RH15 9TT (GB). **STUART, Martin, Nicholas** [GB/GB]; BOC Edwards, York Road, Burgess Hill, West Sussex RH15 9TT (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

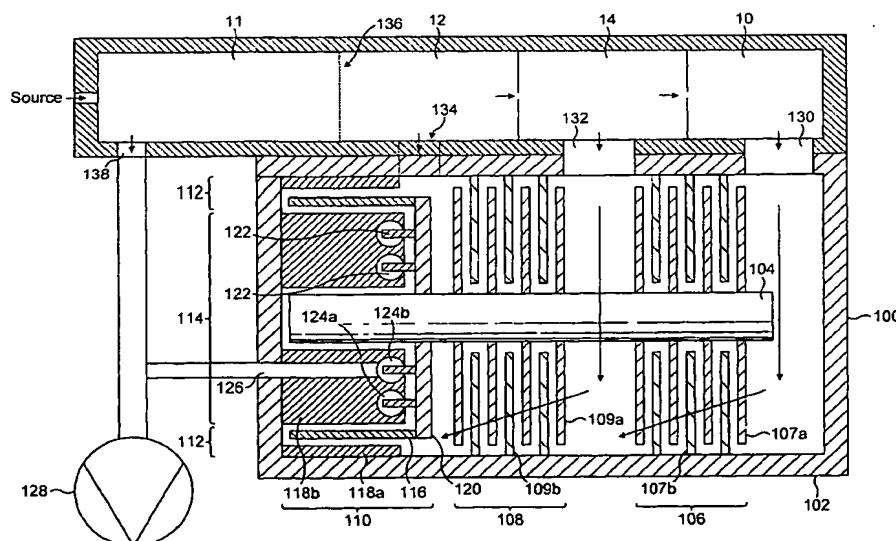
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **VACUUM PUMP**



(57) Abstract: A vacuum pump comprises a molecular drag pumping mechanism and a regenerative pumping mechanism. A rotor element of the molecular drag pumping mechanism surrounds rotor elements of the regenerative pumping mechanism.

WO 2005/033520 A1